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Axel Gerlt

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EXAMINER

SUCH, MATTHEW W

ART UNIT

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/541,815	<b>Applicant(s)</b> GERLT ET AL.	
	<b>Examiner</b> Matthew W. Such	<b>Art Unit</b> 2891	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 June 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 23-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 23-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 July 2008 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 7 is objected to because of the following informalities: the phrase "an organo-resistive conductive element" bridging Lines 6 and 7 should read "the organo-resistive material" in order to maintain proper antecedent basis throughout the claims. Appropriate correction is required.
2. Claim 8 is objected to because of the following informalities: the phrase "the step of providing" in Line 2 should read "a step of providing". Appropriate correction is required.
3. Claims 13 and 14 are objected to because of the following informalities: the phrase "said organo and electrolyte materials" in Line 2 of each claim should read "said organo-resistive material and electrolyte". Appropriate correction is required.
4. Claim 23 is objected to because of the following informalities: the phrase "the organo resistive material" in Line 8 should read "the organo-resistive material". Appropriate correction is required.

### ***Drawings***

5. The drawings are objected to because Figure 2 appears to contradict the disclosure and appears to be non-functional. Specifically, Figure 2 is a circuit arrangement for operation and

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readout of the memory. However, two contacts are provided directly to the organo-resistive material 9 and no contacts are provided to the electrolyte 10. This directly contradicts the specification and appears to render the device inoperable as disclosed. The specification teaches "applying an electrical voltage between 2 and 3 initiates ionic current through 4" (Specification Page 5, Lines 8-9) and that "a conductive layer 3 is likewise applied in structured form...such that it has no direct contact with material 2" (Specification Page 4, Lines 16-18). Further, the specification teaches "the resistance of resistor 9 can now be varied by means of a voltage 12 (also called an excitation voltage) by means of an ionic current flowing through electrolyte 10. This variation in turn causes a change in the potential between 8 and 7, which can be tapped at an output point 13." Therefore, given these teachings, at least one of the two contacts directly contacting the organo-resistive material 9 must actually be contacting the electrolyte.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will

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be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claim 7 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claim recites the element of "the first circuit" ohmically coupled between and to "a ground potential" (Element 5 of Specification) and "a supply voltage" (Element 6 of Specification). The claim further recites "ohmically coupling the first circuit to at least one resistor, to an organo-resistive conductive element [corrected as 'the organo-resistive material'] embedded in the electrolyte, and to a control electrode". As such, the use of the phrase "the first circuit" in claim 7 is a distinct element from "resistor", "organo-resistive conductive element", and the "control electrode" which is not taught by the specification. In fact, the specification teaches that the circuit is the "resistor", "organo-resistive conductive element", and the "control electrode" since the specification teaches that the circuit consists of "a resistor...and an organo-resistive element 8" (Specification Page 5, Lines 19 and 21) and the "organo-resistive element 8

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in turn consists of an organo-resistive conductive element 9 and a control electrode 11, which are both surrounded by an electrolyte 10" (Specification Page 5, Lines 22-24). Therefore, the recitation of "ohmically coupling the first circuit to..." is new element that has not been disclosed by the specification and constitutes new matter.

8. Claim 7 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The claim recites "ohmically coupling the first circuit ohmically between and to a ground potential and a supply voltage". However, as pointed out about above in the rejection of claim 7 under 35 U.S.C. 112, first paragraph, the first circuit is the "resistor", "organo-resistive conductive element", and the "control electrode". The specification teaches that the organo-resistive material / electrolyte structure does not behave ohmically because it does not follow Ohm's law ( $V=IR$ ). Rather, the specification clearly teaches that "the resistance (and with it the conductivity) is in this case altered by several orders of magnitude" (Page 2, Lines 19-20). This non-ohmic behavior is the critical feature of the disclosed device. As such, there cannot be an ohmic contact between a ground potential and a supply voltage since the presence of the organo-resistive material / electrolyte structure in the first circuit prevents the first circuit from behaving ohmically. Therefore, the recitation of "ohmically coupling the first circuit ohmically between and to a ground potential and a supply voltage" is not enabled by the disclosure.

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9. Claims 23 and 25 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The claim recites "an organo-resistive material ohmically coupled to the electrolyte", which is not enabled by the specification. In fact, the specification teaches that the electrolyte is not ohmically coupled to the organo-resistive material since this device does not follow Ohm's law ( $V=IR$ ). Rather, the specification clearly teaches that "the resistance (and with it the conductivity) is in this case altered by several orders of magnitude" (Page 2, Lines 19-20). This non-ohmic behavior is the critical feature of the disclosed device. As such, the recitation of "an organo-resistive material ohmically coupled to the electrolyte" is not enabled by the disclosure.

### ***Claim Rejections - 35 USC § 112***

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim recites "ohmically coupling the first circuit to at least one resistor, to an organo-resistive conductive element [corrected as 'the organo-resistive material'] embedded in the electrolyte, and to a control electrode". However, as pointed out about above in the rejection

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of claim 7 under 35 U.S.C. 112, first paragraph, the first circuit is the "resistor", "organo-resistive conductive element", and the "control electrode". Therefore, the claim is indefinite because it is unclear how something can be ohmically coupled to itself.

Furthermore, the first circuit as pointed out above in the rejection of claim 7 under 35 U.S.C. 112, first paragraph, the first circuit is the "resistor", "organo-resistive conductive element", and the "control electrode" and the specification teaches that the organo-resistive material / electrolyte structure does not behave ohmically because it does not follow Ohm's law ( $V=IR$ ). Rather, the specification clearly teaches that "the resistance (and with it the conductivity) is in this case altered by several orders of magnitude" (Page 2, Lines 19-20). This non-ohmic behavior is the critical feature of the disclosed device. As such, there cannot be an ohmic contact between a ground potential and a supply voltage. Therefore, the recitation of "ohmically coupling the first circuit ohmically between and to a ground potential and a supply voltage" renders the claim indefinite because it is unclear how the first circuit can be ohmically coupled between a ground potential and a supply voltage since the presence of the organo-resistive material / electrolyte structure in the first circuit prevents the first circuit from behaving ohmically.

12. Claims 23 and 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims each recite "an organo-resistive material ohmically coupled to the electrolyte". However, the specification teaches that the electrolyte is not ohmically coupled to



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the organo-resistive material since this device does not follow Ohm's law ( $V=IR$ ). Rather, the specification clearly teaches that "the resistance (and with it the conductivity) is in this case altered by several orders of magnitude" (Page 2, Lines 19-20). This non-ohmic behavior is the critical feature of the disclosed device. As such, the recitation of "an organo-resistive material ohmically coupled to the electrolyte" renders the claim indefinite because it is unclear how the organo-resistive material can be ohmically coupled to the electrolyte.

### ***Claim Rejections - 35 USC § 102***

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

14. Claim interpretations: The Examiner notes that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See, e.g., *In re Pearson*, 181 USPQ 641 (CCPA); *In re Minks*, 169 USPQ 120 (Bd Appeals); *In re Casey*, 152 USPQ 235 (CCPA 1967); *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). See MPEP §2114. The recitation of “memory unit having a storage function” does not distinguish the present

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invention over the prior art, each of which teach the structure as claimed (full explanation to follow). Nevertheless, the devices of the prior art are memory devices with storage function as described below.

The examiner notes that a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987) See MPEP § 2114. Furthermore, while features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997). See MPEP § 2112.01. The recitations of "wherein the storage function of the unit results from the organo-resistive material being embedded in the electrolyte" (in claims 1 and 13), "so that the flow of ionic current through the electrolyte due to application of a voltage to the conductive material causes a readable change in at least one of the conductance or color of the organo-resistive material" (in claim 2), and "wherein a voltage applied to the conductor causes a readable change in the color of the organo-resistive material in response to the flow of ionic current through the electrolyte upon said application of the voltage" (in claim 25) are intended use language which do not differentiate the claimed device from the prior art, who teaches the structure of the claims as described below.

- a. Claims 1-4, 6-7, 9, 12-13 and 25-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Roth (Languir, Vol. 18).

The claims merely describe a notoriously well-known voltammetry device and is disclosed by Roth, who teaches a memory unit having a storage function composed substantially of organic material comprising: an electrolyte ("Electrolyte A" or "Electrolyte B" as described "Chemicals and Materials on Page 4031) and an organo-resistive material ( $C_{12}Fc$ , PM1, PM3 as described throughout the article) embedded in the electrolyte (see Page 4032 and Figure 1 describing that  $C_{12}Fc$ , PM1, PM3 are applied on a working electrode and then immersed in electrolyte, which is embedding the organo-resistive material into the electrolyte). The organo-resistive material of PM1 and PM3 have conjugated chains (see Figure 2, for example). The organo-resistive material is disposed in structured form (as a SAM - self assembled monolayer, see Page 4031-4032) on a substrate (a glass slide, see Page 4032). The organic-resistive material is also soluble for processing (see "Gold Ball Electrode" section on page 4032 which explains that  $C_{12}Fc$ , PM1, PM3 are soluble). The memory unit further includes a conductive electrode material (counter electrode, see Page 4032 and Figure 1) which is separated from the organo-resistive material by the electrolyte.

Regarding the indefinite recitations of claim 7, Roth teaches a method of making the memory unit ohmically coupled "a first circuit" between a ground and supply voltage (see Figure 2 and associated text, for example) and also include the aforementioned organo-resistive material and electrolyte, as well as a resistor (see R1, for example, in Figure 2).

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Regarding the indefinite recitation of "ohmically coupled" claims 7 and 25, Roth must meet this recitation since the structure of the organo-resistive material is embedded in the electrolyte as claimed.

See treatments of functional language above under "claim interpretations".

b. Claims 1-4, 6-7, 9, 12-13 and 25-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Roth (J. Vac. Sci. Technol. B, Vol. 18).

The claims merely describe a notoriously well-known voltammetry device and is disclosed by Roth, who teaches a memory unit having a storage function composed substantially of organic material comprising: an electrolyte (distilled  $\text{CH}_2\text{Cl}_2$  containing 0.1 M  $\text{Bu}_4\text{NPF}_6$  in II. Experiment) and an organo-resistive material (PM0, PM1, PM2, PM3 as describe in Figure 1, for example) embedded in the electrolyte (see Page 2360 II. Experiment and Figure 2 caption). The organo-resistive material of PM0, PM1, PM2, a band PM3 have conjugated chains (see Figure 1, for example). The organo-resistive material is disposed in structured form (as a SAM - self assembled monolayer, see II. Experiment) on a substrate (soft glass, II. Experiment). The organic-resistive material is also soluble for processing (see II. Experiment section which explains that the SAM is processed in solution and is soluble). The memory unit further includes a conductive electrode material (Au counter electrode, see Figure 2 caption) which is separated from the organo-resistive material by the electrolyte.

Regarding the indefinite recitations of claim 7, Roth teaches a method of making the memory unit ohmically coupled "a first circuit" between a ground and supply voltage

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(see Figure 2 and associated text, for example) and also include the aforementioned organo-resistive material and electrolyte, as well as a resistor (see R1, for example, in Figure 2).

Regarding the indefinite recitation of "ohmically coupled" claims 7 and 25, Roth must meet this recitation since the structure of the organo-resistive material is embedded in the electrolyte as claimed.

See treatments of functional language above under "claim interpretations".

c. Claims 1-6, 9-14 and 25-26 are rejected under 35 U.S.C. 102(e) as being anticipated by Sakurai ('879).

The claims merely describe a notoriously well-known organic electrochemical device and is disclosed by Sakurai, who teaches a memory unit having a storage function composed substantially of organic material comprising: an electrolyte (Element 3, Figs. 5-6; Col. 17, Lines 43-44 and Col. 18, Lines 44-45) and an organo-resistive material of polypyrrole, for example (Elements 13 or 14, Figs. 5-6; Col. 17, Lines 53-55 and Col. 18, Lines 46-49) embedded in the electrolyte (see Figs. 5-6). The electrolyte is aqueous (Col. 17, Lines 43-44 and Col. 18, Lines 44-45). The organo-resistive material of polypyrrole has conjugated chains. The organo-resistive material is disposed in structured form (see Elements 13 or 14, for example) on a substrate of Nesa glass (Element 1; Col. 17, Lines 39-40 and Col. 18, Line 42). The organo-resistive material of polypyrrole is also soluble for processing (material is dissolved during dendrite formation processes). The memory

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unit further includes a conductive electrode material (Element 4) which is separated from the organo-resistive material by the electrolyte (Figs. 5-6).

Regarding the indefinite recitation of "ohmically coupled" claim 25, Sakurai must meet this recitation since the structure of the organo-resistive material is embedded in the electrolyte as claimed.

See treatments of functional language above under "claim interpretations".

d. Claims 1-14 and 23-26 are rejected under 35 U.S.C. 102(e) as being anticipated by Misra ('270).

The claims merely describe a notoriously well-known redox device and is disclosed by Misra, who teaches a memory unit having a storage function composed substantially of organic material comprising: an electrolyte (Element 170; Col. 7, Lines 35-57) and an organo-resistive material (Element 120 is PANI, same material disclosed by Applicant, see Col. 4, Lines 35-38) embedded in the electrolyte (see Figs 4A and 4B shows Element 120 embedded in Element 170). The electrolyte can be water-based or solid (Col. 7, Lines 53-56). The organo-resistive material of PANI has conjugated chains. The organo-resistive material is disposed in structured form on a substrate (Element 300, for example). The organo-resistive material of PANI is soluble. The memory unit further includes a conductive electrode material (Element 110) which is separated from the organo-resistive material by the electrolyte (see Figs. 4A and 4B).

Regarding the indefinite recitations of claim 7, Misra teaches a method of making the memory unit ohmically coupled "a first circuit" between a ground and supply voltage

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(see Col. 7, Lines 63-66, for example) and also include the aforementioned organo-resistive material and electrolyte, as well as a resistor, which is another memory device in an array (Fig. 1 and Col. 5, Lines 8-11, for example). Each memory in the array has a given storage density value, and by forming an array, further storage density value higher than the given value results since there are more than one memory units. Further, since each memory unit in the array contains another organo-resistive component, the other memory unit is the electronic organic component of claim 23 which has the same organic material as the original organo-resistive material (Col. 5, Lines 8-11, for example).

Regarding the indefinite recitation of "ohmically coupled" claims 7, 23 and 25, Misra must meet this recitation since the structure of the organo-resistive material is embedded in the electrolyte as claimed.

See treatments of functional language above under "claim interpretations".

### ***Claim Rejections - 35 USC § 103***

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 5, 10-11, 14 and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roth (J. Vac. Sci. Technol. B, Vol. 18).

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Regarding claims 5, 10-11 and 14, Roth teaches the memory unit of claims 1, 3 and 4 wherein the organic-resistive material is also soluble for processing (see II. Experiment section which explains that the SAM is processed in solution and is soluble). However, the device uses a solvent electrolyte of  $\text{CH}_2\text{Cl}_2$  (see II. Experiment). However, Roth also suggests building a device with a solid electrolyte (IV. Outlook, Right Col., Lines 25-27). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a solid electrolyte since Roth suggests building such a device to explore the properties thereof (IV. Outlook, Right Col., Lines 25-27).

Regarding claims 23 and 24, Roth does not explicitly teach using many of the memory units in an array, but suggests that a miniaturized the memory unit would be useful in high density arrays of memory (Page 2359, Right Col. and IV Outlook point (1) on Page 2363, Left Col.). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the disclosed memory cells of Roth in an array of duplicate cells to produce the high density memory array as suggest by Roth (Page 2359, Right Col. and IV Outlook point (1) on Page 2363, Left Col.). It has been held that the mere duplication of parts has no patentable significance unless a new and unexpected result is produced. *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960). See MPEP § 2144.04 VI-B. Additionally, since each memory unit includes the aforementioned organo-resistive material and electrolyte, the resistor is merely another memory device in an array. Each memory in the array has a given storage density value, and by forming an array, further storage density value higher than the given value results since there are more than one memory units. Further, since each memory unit in the array contains another organo-resistive component, the other memory unit is the electronic organic



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component of claim 23 which has the same organic material as the original organo-resistive material.

Regarding the indefinite recitation of "ohmically coupled" claim 7, Roth in view of Beckman must meet this recitation since the structure of the organo-resistive material is embedded in the electrolyte as claimed.

17. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roth (J. Vac. Sci. Technol. B, Vol. 18) in view of Beckman ('536).

Roth teaches that the memory unit is measured by voltammetry with a voltage drop, but does not teach the conventional details of the circuit, except for the voltage drop between the working and counter electrodes (III. Results and Discussion).

However, Beckman teaches a conventional electrochemical cell with the working electrode (Element 2) and counter electrode (Element 4) "ohmically coupled" between ground and a voltage supply (Figs. 1 and 2, for example). It would have been obvious to one of ordinary skill in the art at the time the invention was made to place the memory unit between a supply voltage and a ground potential in order to establish the required voltage potential across the working and counter electrodes.

Roth does not explicitly teach using many of the memory units in an array, but suggests that a miniaturized the memory unit would be useful in high density arrays of memory (Page 2359, Right Col. and IV Outlook point (1) on Page 2363, Left Col.). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the disclosed memory cells of Roth in an array of duplicate cells to produce the high density memory

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array as suggest by Roth (Page 2359, Right Col. and IV Outlook point (1) on Page 2363, Left Col.). It has been held that the mere duplication of parts has no patentable significance unless a new and unexpected result is produced. *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960). See MPEP § 2144.04 VI-B. Additionally, since each memory unit includes the aforementioned organo-resistive material and electrolyte, the resistor is merely another memory device in an array. Each memory in the array has a given storage density value, and by forming an array, further storage density value higher than the given value results since there are more than one memory units. Further, since each memory unit in the array contains another organo-resistive component, the other memory unit is the electronic organic component of claim 23 which has the same organic material as the original organo-resistive material.

Regarding the indefinite recitation of "ohmically coupled" claim 7, Roth in view of Beckman must meet this recitation since the structure of the organo-resistive material is embedded in the electrolyte as claimed.

### ***Response to Arguments***

18. Applicant's arguments, see Remarks, filed 16 June 2008, with respect to the rejection(s) of claim(s) 1-14 and 23-26 under 35 U.S.C. 102(b) have been fully considered and are persuasive.

Therefore, the rejection has been withdrawn.

However, upon further consideration, a new ground(s) of rejection is made in view of newly discovered prior art.

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***Related Prior Art***

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- i. Sager ('080),
- ii. Stupp ('533),
- iii. Willner ('388),
- iv. Kuhr ('519), and
- v. Segal ('141)

each teach conventional electrochemical cells with organo-resistive material embedded in electrolyte materials between electrodes and methods for measuring output.

***Contact Information***

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew W. Such whose telephone number is (571) 272-8895. The examiner can normally be reached on Monday - Friday 9AM-5PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sue Purvis can be reached on (571) 272-1236. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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